

REMARKS

The Office Action dated February 21, 2007, and the patents cited therein have been carefully reviewed, and in view of the above changes and following remarks reconsideration and allowance of all the claims pending in the application are respectfully requested.

Applicants' attorney wishes to thank the Examiner for taking the time to briefly discussing the Office Action with Applicants' attorney on May 15, 2007.

Amendments To The Claims

Applicants have amended claims 1 and 23 to better distinguish over the applied patents by claims 1 and 23 now claiming an acceleration voltage of between 10 keV and 50 keV. Support for this amendment can be found throughout the specification, for example, at least in paragraphs [21], [23] and [28]-[31], and in Figures 6-8 of the originally filed patent application.

The Rejection Under 35 U.S.C. §§ 102(e) and 103(a) Over Ravelosona-Ramasitera

Claim 1-5, 8, 11, 14-16, 23-25, 28 and 29 stand rejected under 35 U.S.C. §§ 102(e) and 103(a) as anticipated by or, in the alternative, as obvious over Ravelosona-Ramasitera et al. (Ravelosona-Ramasitera), U.S. Patent No. 6,605,321.

Applicants respectfully traverse this rejection. Applicants respectfully submit that the subject matter according to any of claims 1-5, 8, 11, 14-16, 13-25, 28 and 29 is not anticipated by and is patentable over Ravelosona-Ramasitera.

Regarding claim 1 and with respect to the issue of anticipation, Applicants respectfully submit that Ravelosona-Ramasitera does not disclose a method comprising irradiating the claimed magnetic medium with ions having an acceleration voltage of between 10 keV and 50 keV to induce exchange coupling between grains of the magnetic medium. In contrast, Ravelosona-Ramasitera discloses a method for enabling a material to be caused to change from one phase to a more ordered phase by irradiating a material by low energy ions having an energy of the order of one or two hundred keV. (See Ravelosona-Ramasitera, column 2, lines 9-11.) Thus, the acceleration voltage range disclosed by Ravelosona-Ramasitera is outside the claimed

acceleration voltage range. Accordingly, the claimed subject matter is not anticipated by Ravelosona-Ramasitera.

Regarding claim 1 and with respect to the issue of patentability, Applicants respectfully submit that

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicant's disclosure. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (See, also, MPEP §§ 706.02(j) and 2143).

Regarding the first basic criterion for establishing a *prima facie* case of obviousness, Applicants respectfully submit that Ravelosona-Ramasitera provides no suggestion or motivation to modify the Ravelosona-Ramasitera method for enabling a material to be caused to change from one phase to a more ordered phase by irradiating a material with ions having an acceleration voltage of between 10 keV and 50 keV. At best, Ravelosona-Ramasitera generally discloses irradiating a "material by low energy ions having an energy of the order of one or two hundred keV." (See Ravelosona-Ramasitera, column 2, lines 9-11.) Additionally, Ravelosona-Ramasitera discloses a specific example of using "low energy ions, such as He ions accelerated in a focused ion beam with an energy 130 keV." (See Ravelosona-Ramasitera, column 4, lines 25-26.) Ravelosona-Ramasitera is silent regarding using ions having an acceleration voltage outside of the range of one or two hundred keV. Thus, the range of acceleration voltages disclosed by Ravelosona-Ramasitera does not suggest the claimed range of between 10 keV and 50 keV. Further regarding the first basic criterion for establishing a *prima facie* case of

obviousness, the Examiner has not alleged particular knowledge generally available to one of ordinary skill in the art for modifying Ravelosona-Ramasitera to use the claimed range of between 10 keV and 50 keV, or to use ions having an acceleration voltage outside of the range of one or two hundred keV.

Regarding the third basic criterion for establishing a *prima facie* case of obviousness, Applicants respectfully submit that Ravelosona-Ramasitera only discloses a method using low energy ions having an energy of the order of one or two hundred keV.” (See Ravelosona-Ramasitera, column 2, lines 9-11.)

Thus, claim 1 is allowable over Ravelosona-Ramasitera. It follows that claims 2-5, 8, 11 and 14-16, which each incorporate the limitations of claim 1, are each allowable over Ravelosona-Ramasitera for at least the same reasons that claim 1 is considered allowable.

Regarding claim 23, Applicants respectfully submit that claim 23 is patentable over Ravelosona-Ramasitera for reasons that are similar to the reasons that claim 1 is considered patentable over Ravelosona-Ramasitera. It follows that claims 24, 25 and 28-29, which each incorporate the limitations of claim 23, are each patentable over Ravelosona-Ramasitera for at least the same reasons that claim 23 is considered patentable over Ravelosona-Ramasitera.

Thus, Applicants respectfully submit that it is only by impermissible hindsight that the Examiner would be able to reject claim 1-5, 8, 11, 14-16, 13-25, 28 and 29 based on the Examiner’s proffered reasoning. Ravelosona-Ramasitera does not disclose or suggest the subject matter of claim 1-5, 8, 11, 14-16, 13-25, 28 and 29. It is only by the Applicants’ disclosure that the Examiner would be able to make the rejection of claim 1-5, 8, 11, 14-16, 13-25, 28 and 29.

Consequently, Applicants respectfully request that the Examiner withdraw this rejection and allow claims 1-5, 8, 11, 14-16, 13-25, 28 and 29.

The Rejection Under 35 U.S.C. § 103(a) Over Ravelosona-Ramasitera

Claims 7 and 27 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Ravelosona-Ramasitera.

Applicants respectfully traverse this rejection. Applicants respectfully submit that the subject matter according to either of claims 7 and 27 is patentable over Ravelosona-Ramasitera.

As with claims 1 and 23, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness for either of claims 7 and 27. Applicants respectfully submit that the Examiner's contention that "it would have been an obvious matter of design choice to one of ordinary skill in the art to use a lower acceleration voltage based on the desired structural modifications of the irradiated material" is without basis.

Applicants respectfully submit that Ravelosona-Ramasitera discloses generally discloses a method for enabling a material to be caused to change from one phase to a more ordered phase by irradiating a material by low energy ions having an energy of the order of one or two hundred keV. (See Ravelosona-Ramasitera, column 2, lines 9-11.) Additionally, Ravelosona-Ramasitera discloses a specific example of using "low energy ions, such as He ions accelerated in a focused ion beam with an energy 130 keV." (See Ravelosona-Ramasitera, column 4, lines 25-26.) As such, Ravelosona-Ramasitera is simply silent regarding using the claimed acceleration voltage of between 20 keV and 30 keV to obtain desired structural modifications of the irradiated material.

Further, Applicants have demonstrated above that Ravelosona-Ramasitera does not disclose or suggest the subject matter of claims 1 and 23, the respective base claims of claims 7 and 27. Accordingly, Applicants respectfully submit that the Examiner's contention regarding claims 7 and 27 is even more tenuous than the Examiner's conclusion regarding claims 1 and 23.

Regarding the Examiner's conclusion relating to "desired structural modification of the irradiated material," Applicants respectfully submit that Ravelosona-Ramasitera is silent regarding exchange coupling. Thus, the Examiner's contention is based on nothing more than hindsight reconstruction.

Consequently, Applicants respectfully request that the Examiner withdraw this rejection and allow claims 7 and 27.

The Rejection Under 35 U.S.C. § 103(a) Over Ravelosona-Ramasitera In View Of Baglin

Claims 12 and 13 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Ravelosona-Ramasitera in view of Baglin et al. (Baglin), U.S. Patent No. 6,331,364.

Applicants respectfully traverse this rejection. Applicants respectfully submit that the subject matter according to claims 12 and 13 is patentable over Ravelosona-Ramasitera in view of Baglin. In particular, Applicants respectfully submit that Baglin does not cure the deficiencies of Ravelosona-Ramasitera with respect to claim 1, the base claim of both claims 12 and 13.

Consequently, Applicants respectfully request that the Examiner withdraw this rejection and allow claims 12 and 13.

Applicants respectfully note that additional patentable distinctions between Ravelosona-Ramasitera and Baglin and the rejected claims exist; however, the foregoing is believed sufficient to address the Examiner's rejections. Additionally, failure of the Applicants to respond to a position taken by the Examiner is not an indication of acceptance or acquiescence of the Examiner's position. Instead, it is believed that the Examiner's positions are rendered moot by the foregoing and, therefore, it is believed not necessary to respond to every position taken by the Examiner with which Applicants do not agree.

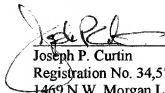
CONCLUSION

In view of the above amendments and arguments, it is urged that the present application is now in condition for allowance. Should the Examiner find that a telephonic or personal interview would expedite passage to issue of the present application, the Examiner is encouraged to contact the undersigned attorney at the telephone number indicated below.

It is requested that this application be passed to issue with claims 1-5, 7-25 and 27-29.

Respectfully submitted,

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